ABSTRACT

A data switching device has ingress routers and egress routers interconnected by a switching matrix controlled by a controller. Each ingress router maintains one or more virtual output queues for each egress router. The switching matrix itself maintains a head-of queue buffer of cells which are to be transmitted. Each of these queues corresponds to one of the virtual output queues, and the cells stored in the switching matrix are replicated from the cells queuing in the respective virtual output queues. Thus, when it is determined that a connection is to be made between a given input and output of the switching matrix, a cell suitable for transmission along that connection is already available to the switching matrix. Upon receipt of a new cell by one of the ingress routers, the cell is stored in one of the virtual output queues of the ingress router corresponding to the egress router for the cell, and also written the corresponding head of queue buffer, if that buffer has space. If not, the cell is stored, and written to the head of queue buffer when that buffer has space for it.

[Fig. 3]